

MARSH



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Best practices for
preventing aircraft ground
damages

HPN Safety Conference

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Introduction

- Reduce aircraft ground damage risk by using “best practices” interventions
- What and where are the risks
- What can be done – best practices
- Size of the problem ? Many costs uninsured, estimated at over \$100 million/year in direct costs
- How many of you have experienced a ground related damage to aircraft ?

Where are the risks –

- *Your operations*
- *FBO's*
- *General airport environments*



Some operators consider being on the ground the highest risk for their aircraft

What are four ways to prevent ramp incidents ?

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What are four ways to prevent these types of incidents ?

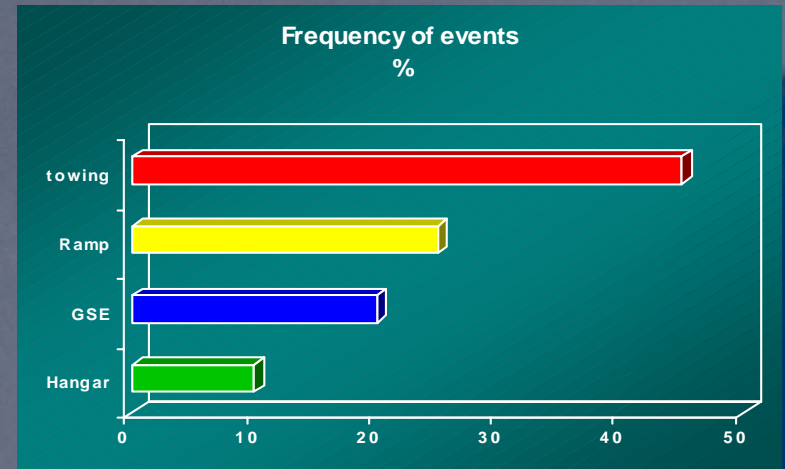
- **The individual**
 - knowledge
 - procedures
 - situational awareness
 - behavioral management
- **Team work - feedback**
 - Line crews and pilots
- **Forcing factors**
 - not many available
- **Leadership / supervision functions**



Most significant risk factors for ground damages



1. Towing
2. Ramp movements
3. Ground service equipment
4. Hangar movements



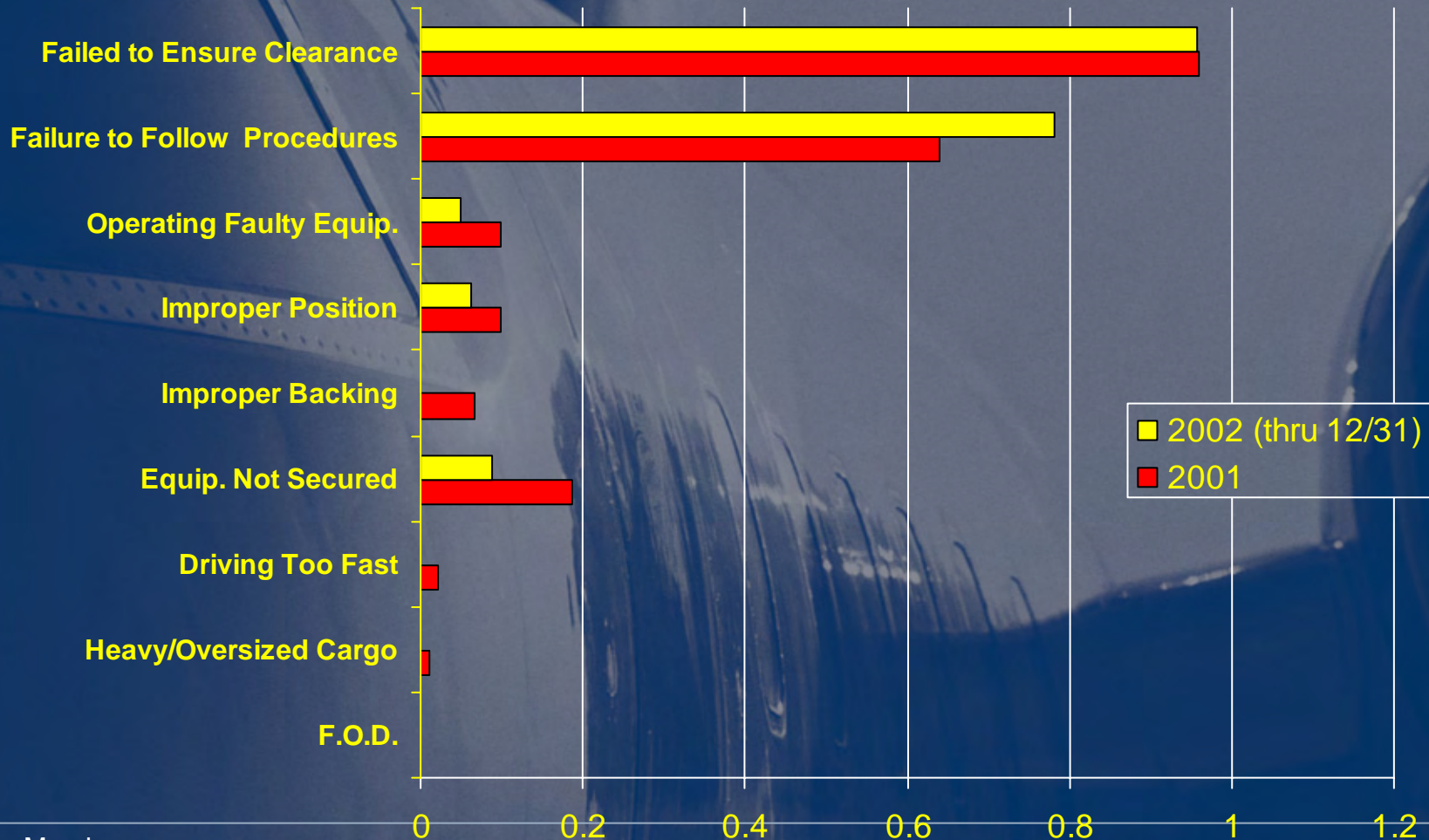
Why do people engage in At-Risk behavior ?



- Lack of defined consequences

A major airlines experience related to ground damage causes

Causes of Category 1 Aircraft Damages
Per 10,000 Departures



Most significant human factors issues for ground damages

1. Time pressures — task saturation
2. Skill based errors — over/under skilled
3. Customer satisfaction
4. Direct rule based violations
5. Environmental i.e. illumination, visual obstructions, noise levels
6. Communications breakdowns
7. Loss of situational awareness
8. Irregular operations
9. Safety Culture
10. Unsafe supervision



What can we do to lower the risks ?

- **Have a plan — develop your own procedures SOP's defined safety “pinpoints” for ground safety - GOM**
- **Train your employees on your procedures**
- **Reinforce team work and mutual protection of the aircraft**
- **Train your employees on the possible exposures for incidents**
- **Conduct risk assessments of your operations and FBO's you visit - IS-BAO risk profile outline ground safety issues and controls**
- **Tell FBO's how you expect your aircraft to be serviced**

What can we do to lower the risks ?

- Reinforce the positive safe behaviors you observe on the ramp
- Share information on “lessons learned” with flight & ground crews – connect with your insurance broker, insurance company, NBAA, NATA
- Measure safety – lagging and pre-loss indicators
- Audit for compliance
- Look for ways to engineer out the risk(s)
- Implement a non punitive reporting policy

Risk Analysis

Risk Assessment

Identification

Measurement

Prioritization

Risk Management

Control It

Share or
Transfer It

Diversify or
Avoid It

Risk Monitoring

Process
Level

Activity
Level

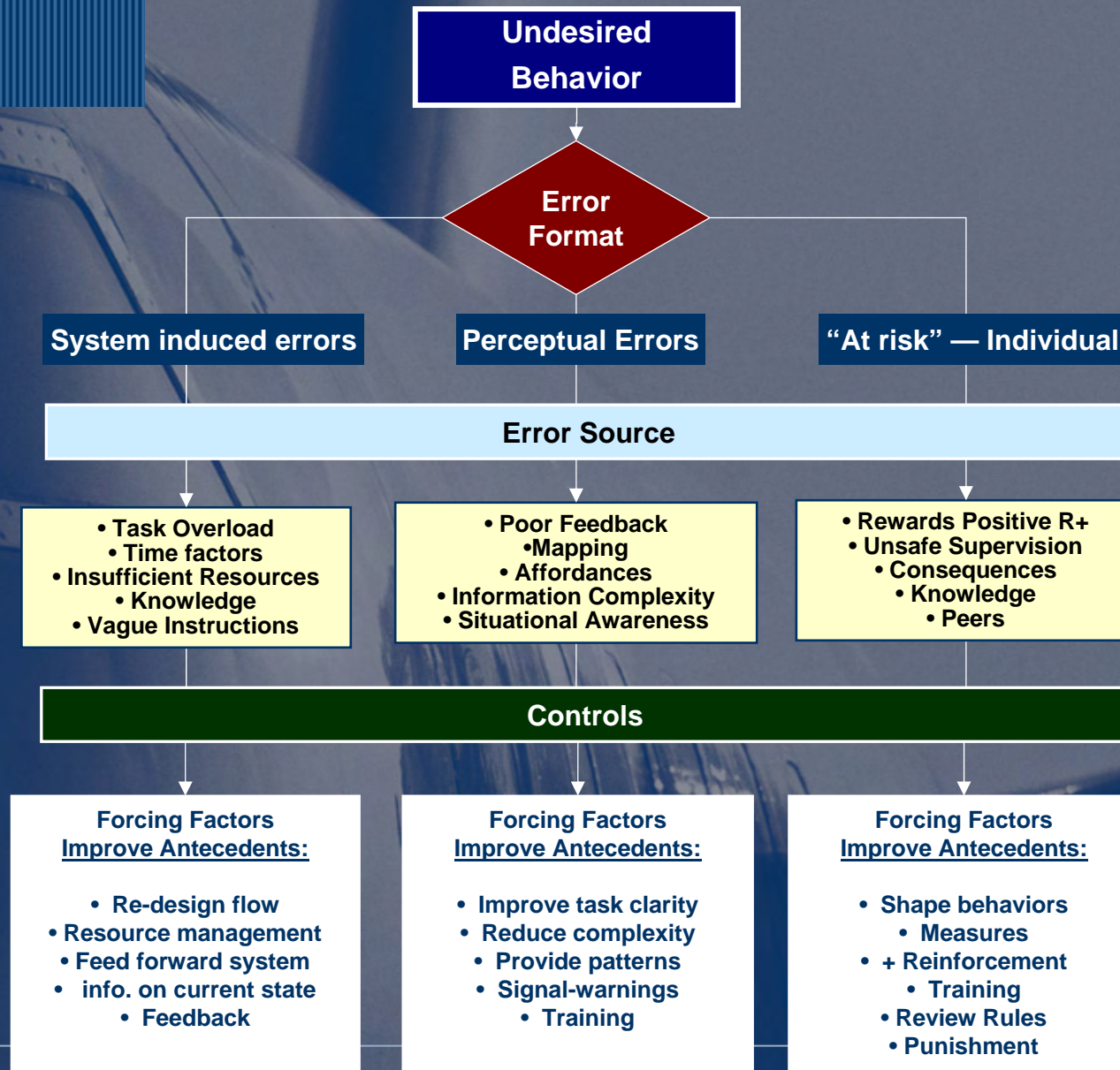
Entity Level

Source: Business Risk Assessment, 1998 – The Institute of Internal Auditors

Why Focus on Human Error and behaviors ?



Sources of "at risk behaviors"



Safety Observations - Changing "at risk behaviors" So what can you do about it?

- **Pinpointing what you desire - MORS**
- **Conducting safety observations**
- **Safety measures - scorecards**
- **Feedback and reinforcement**

What are two key questions for every manager ?

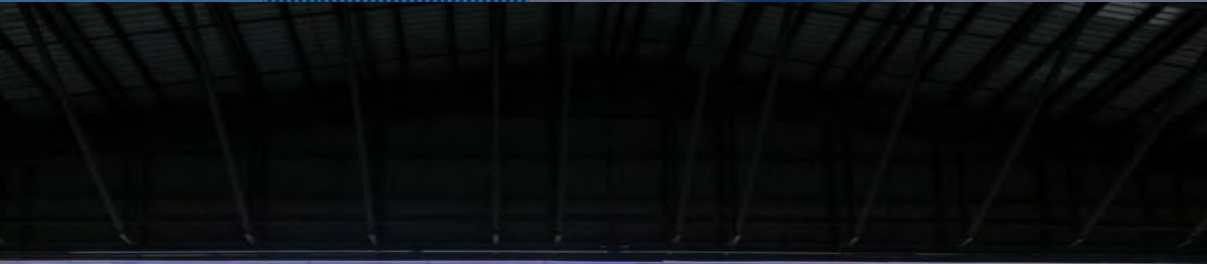
1. How do I get my employees to initially begin using the desired safe procedures ?
2. How do I get them to maintain the desired safe behaviors on a consistent basis?

“It takes less time to do a thing right than to explain why you did it wrong!”

“Henry Wadsworth Longfellow”



Use Consequences



Positive Reinforcement

Negative Reinforcement

Punishment

Penalty

Behaviors Vs. Results

- Behaviors
 - Activities that can be observed directly
 - Can only be counted when the performer is present
- Results
 - The measurable outcome of behaviors
 - What is left over after the performer goes home

Why Measure behavior?

- Evaluate progress
- In order to give feedback
- To capture small improvements that may otherwise go unnoticed
- To be specific about performance
- To enable people to work smarter and make better decisions



Criteria for Pinpointed Behavior

- **M**easurable — can be counted
- **O**bservable — can be seen
- **R**eliable — two or more would agree
- **S**afe — rather than unsafe



Pinpointing allows you to reinforce with precision.

Conducting safety observations

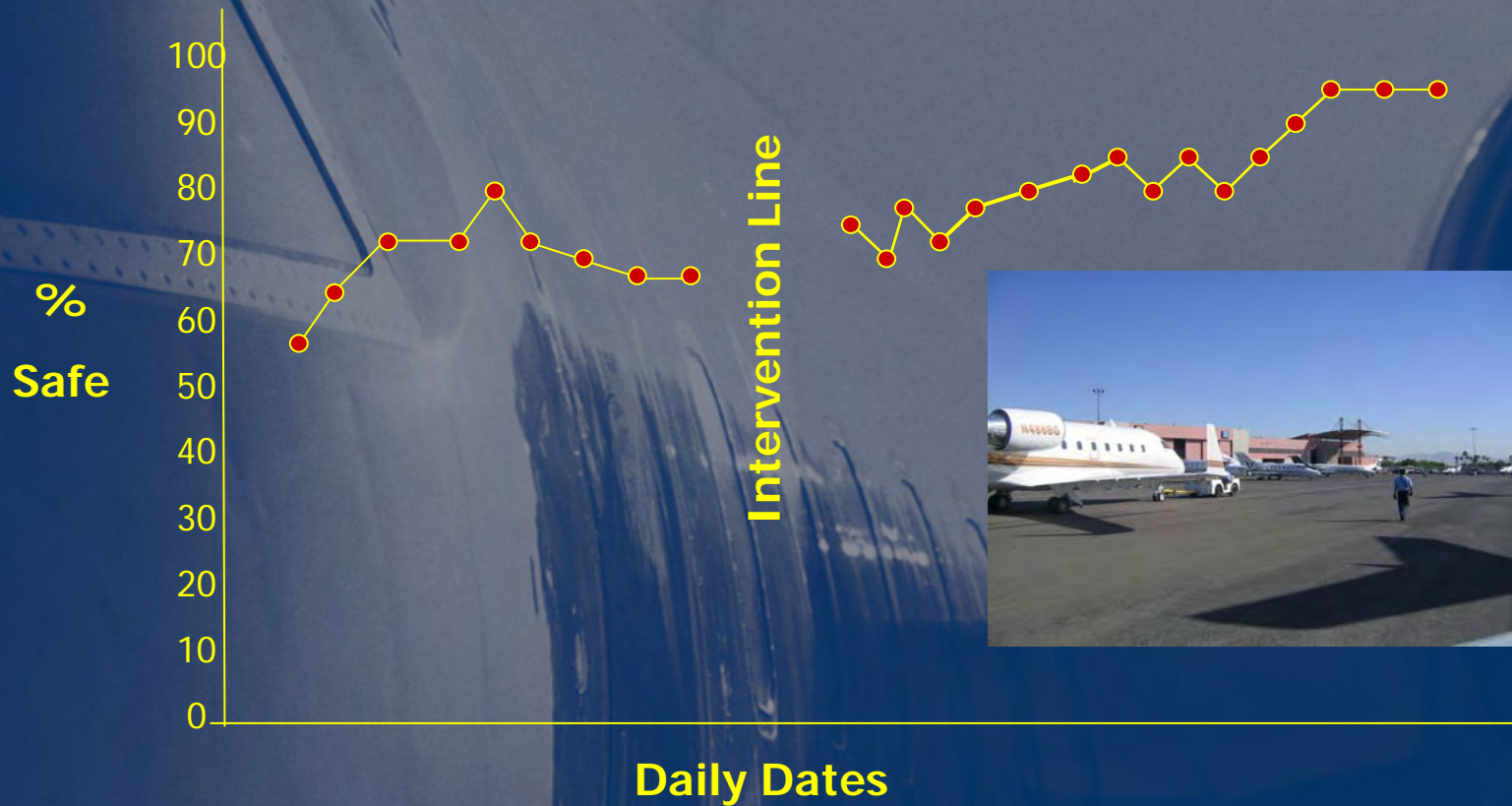
Behaviors	Yes	No	Totals	Can't Do
Two wing walkers on hangar movements	X X X	XXX	3 / 6 = 50%	
Tow aircraft at walking speeds	XX	XXXXXXXX	2/10 = 20%	
Pilots – question line persons before leaving aircraft	XXXXX	XXXXX	5/10 = 50%	



Behavioral Feedback - results



Wing walkers in correct position



Reinforcement - shaping behaviors

Natural - a reinforcer that comes from the environment

Planned - a reinforcer that is planned and delivered

Planned reinforcement is necessary when there is a lack of natural reinforcers. As in the case of safe behaviors!



Pinpointing – key to behavioral measurement

Defining safe behaviors – Why ?



Self-Audit Tool: Gap Analysis

- We have written standard operating procedures Y N
- Employees trained on procedures Y N
- Employees provided risk awareness training Y N
- Incident investigations conducted Y N
- We have completed a risk assessment Y N
- Compliance evaluations completed Y N
- We have the correct ground equipment Y N
- We monitor FBO actions Y N
- We have an accountability system in place Y N
- Access to ramp areas is controlled Y N
- Flight crews provided grnd damage awareness training Y N
- We reward safe behaviors of employees and vendors Y N
- Flight crews take an active role in the protection of assets Y N

Questions ? — Who has a stake in the problem



- **NBAA**
- **NATA**
- **Flight Safety Foundation**
- **Insurance providers**
- **Training vendors**
- **ANSI Z10 2005**
- **Videos, Handouts**